Transportation Data Programs

2021 U.S. DOE Vehicle Technologies Office (VTO)
Annual Merit Review Meeting, June 21-25, 2021

Stacy C. Davis (ORNL), Principal Investigator

Project ID # VAN016

Overview

Timeline
- **Project start date: October 2019**
- **Project end date: September 2022**
- **Percent complete: 55%**

Barriers
- **Barriers addressed**
  - *Multi-Year Program Plan 2011 - 2015*
  - Section 2.6 Outreach, Deployment and Analysis A, B, C
  - Section 3.2 Program Analysis

Budget
- **Total project funding**
  - FY20: $400K
  - FY21: $400k
  - FY22: $400K
  - Total: $1.2M

Partners
- Argonne National Laboratory (ANL)
- National Renewable Energy Laboratory (NREL)

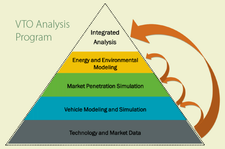
Relevance

Data provide the foundation of the Analysis Program in the pursuit of energy efficient and environmentally friendly technologies.

The objective of the Transportation Data Program is to provide consistent, quality data and information on the transportation sector for VTO researchers and other transportation analysts' use. This reduces the burden on VTO analysts to compile the data individually. Consistency will improve VTO analyses of the transportation sector which contribute to policies, programs, and technologies.

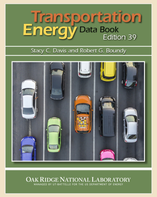
The data produced in this program are available free of restriction on the internet to all communities, including underserved populations.

Milestones

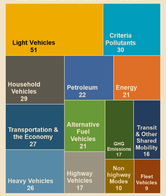


Quarter	Milestone Description	Milestones for the Transportation Data Program FY21
Quarter 1	Fact of the Week prepared weekly for posting on the Vehicle Technologies website	Complete
Quarter 2	Release Edition 39 of the Transportation Energy Data Book on the website	Complete
Quarter 3	Interim update of tables and figures on the Transportation Energy Data Book website	Complete
Quarter 4	Draft of the Transportation Energy Data Book: Edition 40 delivered to VTO	On track
Quarter 4	Go/no-go milestone With DOE input, determine if DOE VTO research efforts require up-to-date transportation data and if the outreach of the Transportation Data Program should be continued.	On track

Approach: Transportation Energy Data Book (TEDB)



225 TABLES & 71 FIGURES BY SUBJECT



Approach: Fact of the Week (FOTW)

www.energy.gov/eere/vehicles/transportation-fact-week

- Facts consist of a graphic, explanatory text, source, and an Excel file.
- Facts are posted on the VTO website every Monday.
- Facts are emailed to an ever-growing subscription list every Monday.

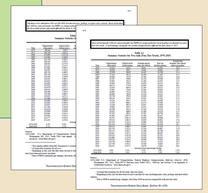
The Fact of the Week is written on a variety of topics

Unique "Big Energy Table"

- Energy use in Btu by mode and fuel type
- Appendix A holds sources and assumptions
- About 20 sources
- Added electricity use to light vehicles two years ago (documented estimates)

Value-Added

- Combine data to present unique data series.
- Present data from different tables/reports to show a unique perspective



Car and Light Truck Population Data
FHWA discontinued this in 2009; ORNL/ANL develop estimates each year to continue the series

Approach: Data Book & Fact of the Week

Publish data and information in PDF, Excel, and HTML on VTO and ORNL websites for VTO researchers and others to access.

Discovery
- Content review
- Source identification
- Data collection

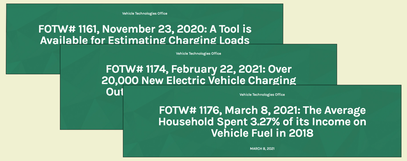
Due Diligence
- Convert units
- Perform calculations
- Confirm revisions
- Analyze data
- Study definitions
- Assemble notes
- Create graphs & tables
- Write text

DOE Approval
- VTO approval
- EERE approval
- Draft finalized

Outreach
- Post Fact on VTO site
- Program Fact email
- Update TEDB Website
- Respond to inquiries
- Request user feedback

ORNL works with others to meet the data needs of the VTO Transportation Analysis Program

- Work with many public & private entities in the data collection process.
- ORNL works closely with:
  - VTO staff who approve each Fact of the Week.
  - ANL staff who program and post the Fact of the Week on the VTO website.
  - ANL staff who work with data on electric vehicles.
  - NREL staff to make sure our data are congruent with the Alternative Fuels Data Center
- Work with other Labs supporting VTO, such as the multi-Lab team on the Total Cost of Vehicle Ownership.
- Work with other Labs to showcase their work via the Fact of the Week and the Data Book.

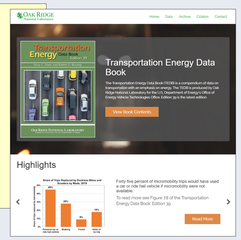


Examples of Facts posted that use ANL or NREL data as a source

Technical Accomplishments/Progress: Transportation Energy Data Book

http://energy.gov/eere/vehicles/transportation-fact-week

- February 2021: Website & rotating highlights were updated to Edition 39 on https://tedb.ornl.gov
- April 2021: Edition 39.1 was posted to the website and have about 75 updated tables and figures
- August 2021: Edition 39.2 will be posted to the website and have additional updated tables & figures
- September 2021: Edition 40 draft due to VTO

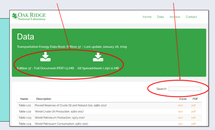


Important website features

- Feedback encouraged at bottom of the homepage
- Archive page contains older reports from the Transportation Data Program
- Data page allows keyword search for quickly finding data and has all spreadsheets zipped into one file for portability

On the Data page, download full PDF or spreadsheets

Search by topic for Excel or PDF of specific tables/figures



Models/Analyses Using the Transportation Energy Data Book

- Data collected in the Transportation Data Program provides input data to other VTO programs and other agency's models.
- The Transportation Energy Data Book is used by Congressional staff, auto manufacturers, state governments, universities (professors & students), libraries, federal agencies, and more.
- In the past, our data have been cited in Popular Science, Newsweek Education Program, and the Economic Report of the President.

MA3T
GREET
ADOPT
Parachoice
Benefits analysis
DOE eGallon Initiative
DOE Advanced Technology Manufacturing Loans Program
National Science Foundation website
EPA MOVES
EIA NEMS

TEDB Tidbit

The differences in the fuel economy test cycles for new light-duty vehicles sold in the U.S., Europe, and Japan lead to incompatible fuel economies. A single vehicle tested on all three cycles yielded up to a 28% difference in fuel economy.

See Table 4.37 of the Transportation Energy Data Book: Edition 39.

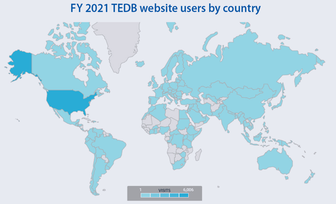
TEDB Tidbit

The VTO Technology Integration Program has added a "TEDB Tidbit" section to their Clean Cities Coordinator Newsletter that is emailed out from NREL twice a month. ORNL provides NREL with a graph and short description from the Transportation Energy Data Book, along with a link back to the Data Book website.

Top External Referring Domains
en.wikipedia.org
www.researchgate.net
links.gd
www.bts.gov
afdc.energy.gov

Page Views, Downloads, Citations				
Month-Year	Page Views	PDF Downloads	XLS Downloads	Total Views
FY 2020 Total	58,060	16,516	5,613	74,221
Oct 2020	3,496	514	28	4,038
Nov 2020	2,921	366	46	3,333
Dec 2020	2,695	321	22	3,038
Jan 2021	3,359	424	26	3,809
Feb 2021	3,474	519	35	4,028
Mar 2021	5,839	791	32	6,662
Google Scholar Citations as of April 28, 2021				
About 3,590				

FY 2021 TEDB website users by country



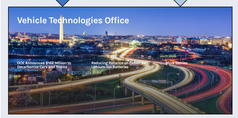
Technical Accomplishments/Progress: Fact of the Week

- A Fact of the Week has been posted each week of FY 2021.
- Fact of the Week content accounted for 270,453 pageviews, or 47% of all VTO site pageviews during the first half of FY 2021.

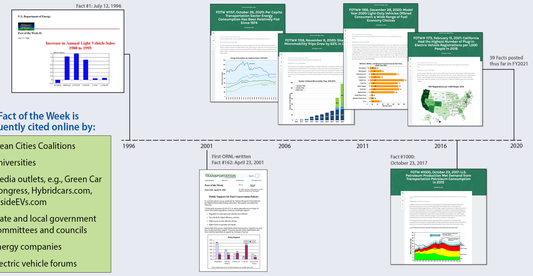
The Fact of Week drives traffic to the VTO website

Fact of the Week site visits 55%

Other VTO site visits 45%

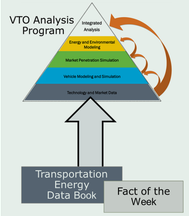


http://energy.gov/eere/vehicles/transportation-fact-week



The Fact of the Week is frequently cited online by:
- Clean Cities Coalitions
- Universities
- Media outlets, e.g., Green Car Congress, Hybridcars.com, InsideEVs.com
- State and local government committees and councils
- Energy companies
- Electric vehicle forums

Proposed Future Research



- Future plans are to continue the two components of the Transportation Data Program to support the VTO Analysis Program in the next fiscal year.
- All future work will be updated to the latest possible data/information available and will include new material on emerging topics of interest.
- Feedback from data users will be used to continually improve upon data, data sources, and data serving (websites).
- ORNL will answer ad hoc data requests from VTO staff and Analysis Program team members.

Any proposed future work is subject to change based on funding levels

Reviewer Comments

Comment	Response
Consider extending to state or non-national data	Edition 39 has four new tables containing data by State. Previous editions contained some EV data from California and some micromobility data from selected cities.
Automate the process	ORNL is continually making process improvements. Automation is already employed in parts of the process and ORNL has investigated additional automation. With the wide array of TEDB sources and inconsistency in format and location over time, maintaining automation is not always advantageous.
Formally collect data feedback from users via surveys	The TEDB website encourages feedback on the homepage and provides contact information in several places. Per government policy, OMB must approve a formal survey of more than 9 individuals. ORNL will work with DOE on a survey if that is a priority.
TEDB should include more current data	ORNL agrees wholeheartedly with this comment. However, the TEDB can only include data once it is published from the original source. When the FHWA releases 2019 VMT in 2021, then 2019 are the latest data available for publication. The TEDB Updates which happen twice a year were added in order to release data in a more timely manner.

Summary

Objectives	• Provide consistent, quality data on the transportation sector for VTO researchers and other transportation analysts' use
Outcomes	• Annual Transportation Energy Data Book with two interim updates • Weekly Fact of the Week website posting & email distribution
Methods	• Data discovery, due diligence, approval, & publication in collaboration with government, private sector, academia, & other laboratories
Results	• Data Book website page views averaged 4,152 per month in FY21 • Google Scholar citations are 3,590 as of April 28, 2021 • Fact of Week email currently has over 25,000 subscribers
Milestones	• This project has weekly, monthly, and annual milestones delivered on-time and within budget

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